AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings of claims in the application:

LISTING OF CLAIMS:

1-15. (cancelled)

16. (currently amended) A method for ~~the prevention or the treatment of pathologies linked to an overexpression of GLUT1 on cell surfaces, and for the~~ *in vitro* diagnosis of ~~said pathologies,~~ pathologies linked to over-expression of GLUT1 on cell surfaces ~~comprising the use of an appropriate amount of polypeptides corresponding to the envelope proteins of PTLV, or fragments or sequences derived thereof, said polypeptides being selected for their ability to bind specifically to the ubiquitous vertebrate glucose transporter GLUT1 represented by SEQ ID NO : 2, or of nucleotide sequences encoding said polypeptides~~, said method comprising:

- contacting a biological sample from an individual with a GLUT1 binding polypeptide, said GLUT1 binding polypeptide being optionally labelled, or susceptible to be recognized by a labelled molecule, and

- determining the level of said GLUT1 binding polypeptide bound to cells contained in the biological sample and comparing with the level of binding of said GLUT1 binding

polypeptide to cells contained in a biological sample from a healthy individual,

wherein said GLUT1 binding polypeptide corresponds to envelope proteins of PTLV, or fragments or sequences derived thereof, that specifically bind to the ubiquitous vertebrate glucose transporter GLUT1 represented by SEQ ID NO: 2.

17. (currently amended) The method of claim 16, wherein the ~~polypeptides are~~ GLUT1 binding polypeptide is able to bind to at least one of the following fragments of GLUT1 selected from the group consisting of:

- SEQ ID NO: 25: NAPQKVIEEFY;
- SEQ ID NO: 26: NQTWVHRYGESILPTTLTTLWS;
- SEQ ID NO: 27: KSFEMLILGR;
- SEQ ID NO: 28: DSIMGNKDL;
- SEQ ID NO: 29: YSTSIFEKAGVQQP;
- SEQ ID NO: 30: EQLPWMSYLS;
- SEQ ID NO: 31: QYVEQLC; and
- SEQ ID NO: 32: IVGMCFQYVEQLC.

18. (currently amended) The method of claim 16, wherein the ~~polypeptides are~~ GLUT1 binding polypeptide is able to bind to at least the following fragment of GLUT1:

- SEQ ID NO: 32: IVGMCFQYVEQLC

19. (currently amended) The method of claim 16, ~~comprising the use of GLUT1 binding polypeptides chosen among the followings~~, the GLUT1 binding polypeptide is selected from the group consisting of:

- the envelope protein of HTLV-1 corresponding to SEQ ID NO: 4, or of HTLV-2 corresponding to SEQ ID NO: 6, or of STLV-1 corresponding to SEQ ID NO: 8, or of STLV-2 corresponding to SEQ ID NO : 10, or of STLV-3 corresponding to SEQ ID NO: 12~~,~~;

- fragments of the envelope proteins of PTLV, said fragments corresponding to polypeptides delimited in their N-terminal extremity by the amino acid located in position 1 to 90, or in position 75 to 90, and in their C-terminal extremity by the amino acid located in position 135 to 245, or in position 135 to 150, of said envelope proteins of PTLV, such as SEQ ID NO: 4, 6, 8, 10, 12~~,~~; and

- fragments of the envelope proteins of PTLV, wherein said fragments of the envelope proteins of PTLV corresponding to the ~~following~~ polypeptides selected from the group consisting of:

* the polypeptide delimited in its N-terminal extremity by the amino acid located in position 83 to 89, and in its C-terminal extremity by the amino acid located in

position 139 to 145, of the envelope protein of the strain MT-2 of HTLV-1 corresponding to SEQ ID NO: 4;

* the polypeptide delimited in its N-terminal extremity by the amino acid located in position 79 to 85, and in its C-terminal extremity by the amino acid located in position 135 to 141, of the envelope protein of the strain NRA of HTLV-2 corresponding to SEQ ID NO: 6;

* the polypeptide delimited in its N-terminal extremity by the amino acid located in position 83 to 89, and in its C-terminal extremity by the amino acid located in position 139 to 145, of the envelope protein of STLV-1 corresponding to SEQ ID NO: 8;

* the polypeptide delimited in its N-terminal extremity by the amino acid located in position 79 to 85, and in its C-terminal extremity by the amino acid located in position 135 to 141, of the envelope protein of STLV-2 corresponding to SEQ ID NO: 10;

* the polypeptide delimited in its N-terminal extremity by the amino acid located in position 82 to 88, and in its C-terminal extremity by the amino acid located in position 138 to 144, of the envelope protein of STLV-3 corresponding to SEQ ID NO: 12;

* the polypeptide corresponding to the envelope protein of a variant of HTLV-1, said polypeptide having the following sequence SEQ ID NO: 14:

I K K P N P N G G G Y Y L A S Y S D

P C S L K C P Y L G C Q S W T C P Y

T G A V S S P Y W K F Q Q D V ;

* the polypeptide corresponding to the envelope protein of a variant of HTLV-1, said polypeptide having the following sequence SEQ ID NO: 16~~,~~:

V K K P N R N G G G Y Y L A S Y S D

P C S L K C P Y L G C Q S W T C P Y

T G A V S S P Y W K F Q Q D V ;

* the polypeptide corresponding to the envelope protein of a variant of HTLV-1, said polypeptide having the following sequence SEQ ID NO: 18~~,~~:

I K K P N R N G G G Y Y L A S Y S D

P C S L K C P Y L G C Q S W T C P Y

T G A V S S P Y W K F Q Q D V ;

* the polypeptide corresponding to the envelope protein of a variant of HTLV-1, said polypeptide having the following sequence SEQ ID NO: 20~~,~~:

I K K P N R N G G G Y Y L A S Y S D

P C S L K C P Y L G C Q S W T C P Y

T G P V S S P Y W K F Q Q D V ;

* the polypeptide corresponding to the envelope protein of a variant of HTLV-1, said polypeptide having the following sequence SEQ ID NO: 22~~,~~:

I K K P N R N G G G Y H S A S Y S D P

C S L K C P Y L G C Q S W T C P Y A G

A V S S P Y W K F Q Q D V N F T Q E V ; and

* the polypeptide corresponding to the envelope protein of a variant of HTLV-2, said polypeptide having the following sequence SEQ ID NO: 24~~,~~:

I R K P N R Q G L G Y Y S P S Y N D

P C S L Q C P Y L G S Q S W T C P Y

T A P V S T P S W N F H S D V .

20. (currently amended) The method of claim 16, ~~characterized in that the pathologies are the followings~~ wherein the pathologies are selected from the group consisting of:

- solid tumors, such as brain tumors, squamous cell carcinoma, hypopharyngeal carcinoma, breast cancer, cervical carcinoma, ovarian carcinoma, pancreatic cancer, insulinoma~~,~~;

- inflammatory conditions, such as multiple sclerosis, rhumatoid arthritis~~,~~;

- immune or auto-immune diseases, such as autoimmune myocarditis, or in the frame of CD28 T-cell activation, or in the frame of immunomodulation, or systemic lupus erythematous~~,~~; and

- disorders of the central nervous system, such as facilitated glucose transporter protein type 1 (GLUT1) deficiency syndrome.

21-24. (cancelled)

25. (currently amended) ~~Therapeutic vectors~~ useful for A therapeutic vector for targeting GLUT1 overexpressing cells in pathologies linked to an overexpression of GLUT1 on cell surfaces, said ~~vectors containing at their surface~~ therapeutic vector comprising:

one or more GLUT1 binding polypeptides on its surface, and ~~containing~~

one or more molecules active against said pathologies, or containing genes ~~in the frame of~~ for gene therapy.

26. (currently amended) ~~Pharmaceutical compositions containing~~ A pharmaceutical composition comprising the therapeutic vectors according to claim 25, in association with a pharmaceutically acceptable carrier.

27. (currently amended) A method for ~~the~~ screening ~~of~~ compounds useful for ~~the~~ prevention or ~~the~~ treatment of pathologies linked to an overexpression of GLUT1 on cell surfaces, and the *in vitro* diagnosis of said pathologies, said method comprising:

~~the~~ contacting ~~of~~ GLUT1 represented by SEQ ID NO: 2, or ~~of~~ the fragments as defined in claim 17, or sequences

derived thereof, said fragments or derived sequences being able to bind to the envelope proteins of the primate T-cell leukemia viruses (PTLV), or of cells expressing GLUT1, with compounds to be tested~~,~~; and

~~- the selection of~~ selecting compounds able to bind specifically to GLUT1, or fragments or sequences derived thereof.

28. (cancelled)

29. (currently amended) The method according to claim ~~28 for the *in vitro* diagnosis of pathologies chosen from~~31, wherein said pathologies are selected from the group consisting of:

- solid tumors, such as brain tumors, squamous cell carcinoma, hypopharyngeal carcinoma, breast cancer, cervical carcinoma, ovarian carcinoma, pancreatic cancer, insulinoma~~,~~;

- inflammatory conditions, such as multiple sclerosis, rhumatoid arthritis~~,~~;

- immune or auto-immune diseases, such as autoimmune myocarditis, or in the frame of CD28 T-cell activation, or in the frame of immunomodulation, or systemic lupus erythematous~~,~~; and

- disorders of the central nervous system, such as facilitated glucose transporter protein type 1 (GLUT1) deficiency syndrome.

30. (currently amended) A kit for the *in vitro* diagnosis of pathologies linked to an overexpression of GLUT1 on cell surfaces ~~according to the method of claim 28~~, said kit comprising GLUT1 binding polypeptides, said GLUT1 binding polypeptides being optionally labeled, and, ~~if necessary~~ optionally reagents for the detection of the binding of said GLUT1 binding polypeptides to GLUT1 initially present on cell surfaces in ~~the~~ a biological sample,

wherein said GLUT1 binding polypeptide corresponds to envelope proteins of PTLV, or fragments or sequences derived thereof, that specifically bind to the ubiquitous vertebrate glucose transporter GLUT1 represented by SEQ ID NO: 2.

31. (new) A method for prevention or treatment of pathologies linked to an over-expression of GLUT1 on cell surfaces, said method comprising:

administering a subject in need thereof an effective amount of a GLUT1 binding polypeptide, wherein said GLUT1 binding polypeptide corresponds to envelope proteins of PTLV, or fragments or sequences derived thereof, said GLUT1 binding

polypeptide binds specifically to an ubiquitous vertebrate glucose transporter GLUT1 represented by SEQ ID NO : 2, or of nucleotide sequences encoding said polypeptides.